

STACKABLE LOOKUP ENGINES

5 ABSTRACT OF THE DISCLOSURE

Multiple lookup engines stacked upon one another in a single data communication switch. The lookup engine at the top of the stack transmits its result to the neighboring downstream lookup engine which either validates and transmits the received result or its own result based on the quality of its match. The result preferably indicates an exact match, partial match, or no match. Although several lookup engines can return a partial match, an exact match preferably occurs in only one lookup engine. The comparison, validation, and transmission steps are repeated by each downstream lookup engine, with the lookup engine at the bottom of the stack validating and returning a final result to the packet processor. The returned final result reflects a search result with the highest match quality.

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